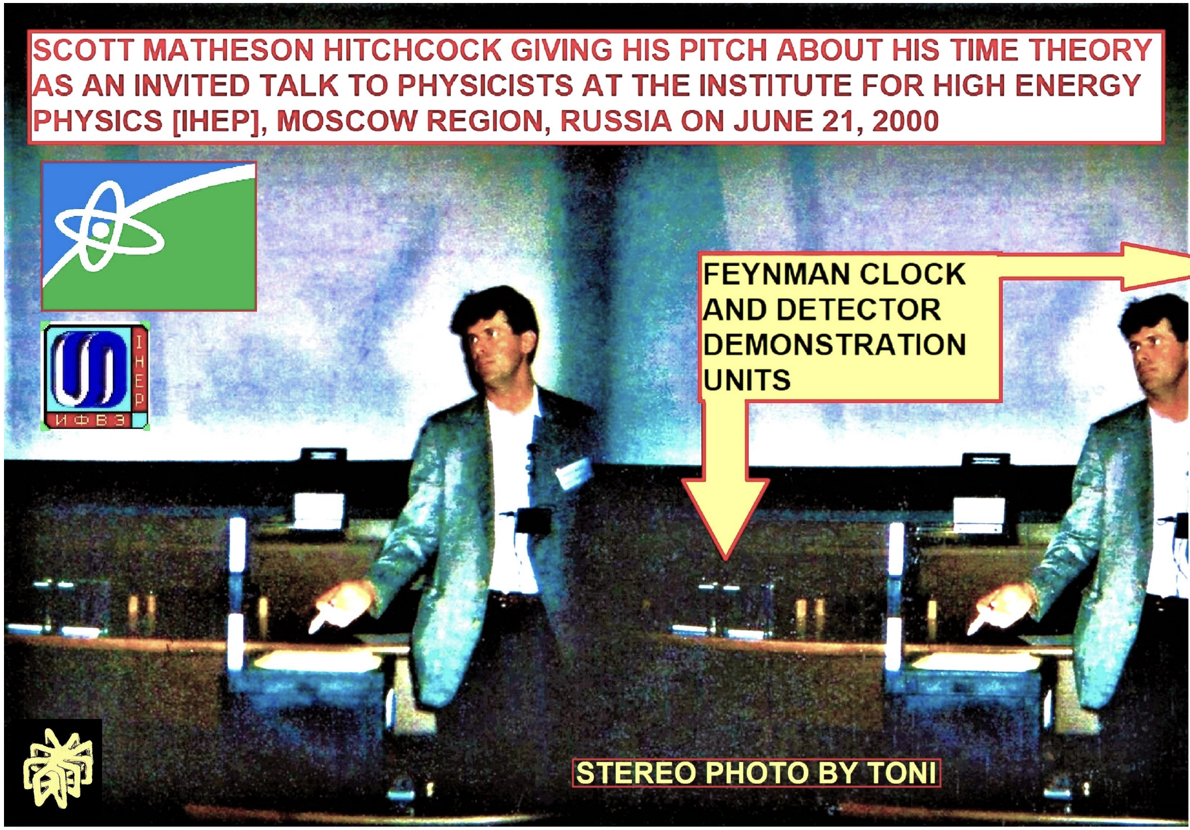
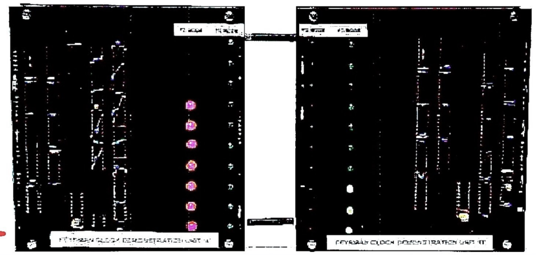
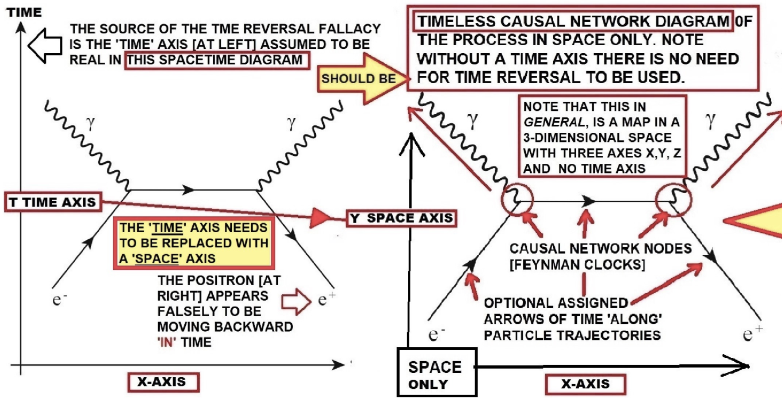


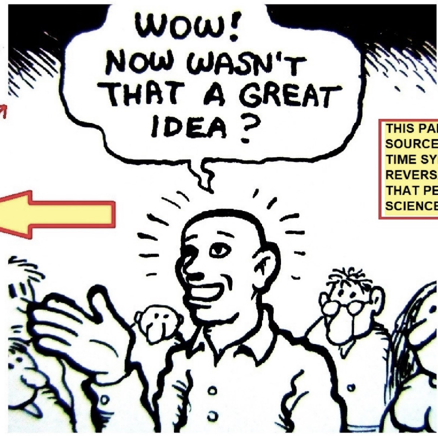



**IHEP 2000 [Russia] An Invited Talk "Feynman Clocks And The Origins Of Time In Complex Systems From The Big Bang To The Brain" by Scott Matheson Hitchcock Given at The Institute For High Energy Physics [IHEP] , Protvino, Russia. Presented: Wednesday, June 21, 2000**

**Feynman Clock Demonstration Units**, The units illustrate the status of the excited (green LEDS) and detector states (red LEDs) of two representative FC-nodes or gates in a causal network. Each of the two identical FC/FD units in the kit is a battery operated infra-red photon pulse transmitter and detector. Signals from one unit are sent to the other unit by conventional infrared sources and detectors used in television remote controls. They are shielded from stray light by the two hollow black tubes between the units. The 'time' interval between successive FC signal emissions (accompanied by a decreasing number of green LEDS displayed on the transmitter) represents the lifetime of the collective exctiation state forthat system configuration given by the number of LEDs illuminated. The 'decay', or 'decoherence' lifetimes for the transition from the FD mode to the FC mode of a unit represent the internal reconfiguration process of the entire gate or node. The number of green LEDs displayed indicates hoe many signals or excited states remain in the Feynman Clock mode of that unit from a maximum possible number of 10. After all ten signals have been sent the transmitting unit shifts to a FD mode with no lights on. It remains in this mode until 10 signals have been detected by it or it is shut off. Examples of these systems include the photon emission and absorption in atoms, phonons or sound waves emitted or detected in crystals, and electron and 'exciton' flow in photosynthetic networks in plant cells. The cyclical circuits created with the feedback and feedforward of signals between these two units illustrates elementary information processing in neurons. Conventional 'time' between red/green LED events is created by the observer of the two node network by a process of signal mapping. The red and green light is mapped to the internal or standard clock of the observer from which the understanding of the causal nature of the information flow between these two units is related to the standard 'direction' and 'dimension' associated with 'time'.




WHY Feynman's Positron Time Reversal Proposal in 1949 is WRONG AND THE TIME REVERSAL & TRAVEL MYTHS are *FINALLY CLEARED UP* by SCOTT MATHESON HITCHCOCKS THEORY OF TIME




# Time Reversal and The Theory of Positrons

**By Scott Matheson Hitchcock**

THE ORIGINAL PAPER* [Phys. Rev. 76, 749 – Published 15 September 1949] BY RICHARD P. FEYNMAN IS SHOWN TO BE INCORRECT WHERE TIME AND ITS DIRECTION ARE CONCERNED. See the figure below from Feynmans paper. IN the CAPTION for this FIGURE,THE LAST LINE STATES THE CONCLUSION THAT "electrons traveling backwards in time are recognized as positrons". This is an INCORRECT artifact due to the a-priori ASSUMPTION that time is a dimension and a component of space-time and more importantly that time is reversible.

***Time symmetry does not exist.***

THIS PAPER IS THE PRIMARY SOURCE OF THE *MYTHS* OF TIME SYMMETRY, TIME REVERSAL AND TIME TRAVEL THAT PERSIST IN THE SCIENCE AND SCI-FI WORLDS

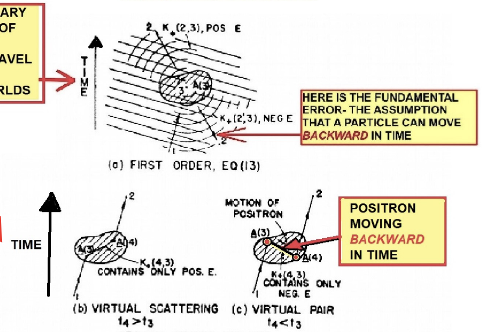



FIG. 2. The Dirac equation permits another solution $K_+(2, 1)$ if one considers that waves scattered by the potential can proceed backwards in time as in Fig. 2 (a). This is interpreted in the second order processes (b), (c), by noting that there is now the possibility (c) of virtual pair production at 4, the positron going to 3 to be annihilated. This can be pictured as similar to ordinary scattering (b) except that the electron is scattered backwards in time from 3 to 4. The waves scattered from 3 to 2' in (a) represent the possibility of a positron arriving at 3 from 2' and annihilating the electron from 1. This view is proved equivalent to hole theory: electrons traveling backwards in time are recognized as positrons.

**SCOTTS NEW THEORY OF TIME: WHERE TIME IS COMPUTED FROM INFORMATION EXTRACTED AND PROCESSED FROM SIGNALS BY A *SYSTEM* COMPOSED OF CAUSAL NETWORKS, FEYNMAN CLOCKS [AS NODES IN THE CAUSAL NETWORKS], STANDARD CLOCKS [FOR CALIBRATION], AND THE BRAINS T-COMPUTER.**

**►►►►► A SYSTEMS APPROACH GIVES US THE *SOLUTION* TO THE PROBLEM OF TIME:**

**FOR SIMPLE SYSTEMS, ACCORDING TO THE PRINCIPLE OF OCCAM'S RAZOR THE SIMPLEST EXPLANATION FOR OBSERVED BEHAVIORS IS THE BEST CHOICE. BUT FOR COMPLEX SYSTEMS, A *SYSTEMS APPROACH* IS NECESSARY FOR UNDERSTANDING THE OBSERVED PHENOMENA. CLEARLY SIMPLE EXPLANATIONS ABOUT THE FUNDAMENTAL NATURE OF TIME ARE NOT ADEQUATE, THIS IS WHY SCOTT REALIZED THAT TO UNDERSTAND THE NATURE OF TIME HIS SYSTEMS APPROACH WORKS TO CLARIFY ISSUES ABOUT THE FUNDAMENTAL PHYSICS AND NATURE OF TIME.**